# Electrochemical remediation of contaminated real marine sediments under very low electric fields

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To date, the technologies for restoring contaminated sediments and soil are not very effective; therefore, their remediation remains challenging [1]. Direct Current Technologies (DCTs) are considered among the most practical, sustainable, cost-effective and noninvasive in-situ and ex-situ options. DCTs for environmental remediation include ElectroChemical GeoOxidation (ECGO) technologies, which mineralise organics without using costly processing fluids [2]. Recently, we have demonstrated that ECGO technology could be a suitable way to treat clay kaolin or marine sediments for the in-situ removal of phenolic compounds [2], saturated alkanes [3] or PAHs [4] using $E$ values lower than 0.25 V $cm^{-1}$ without the generation of secondary effluent and at low energetic consumption.

Within this framework, this work aims to present the results achieved for the electrochemical treatment of sandy marine sediments from Bagnoli-Coroglio Bay (Naples, Italy) using a wide range of electric fields ($E$, $0.005 \leq E \leq 2$ V $cm^{-1}$) for 96 hours and electrodes directly in contact with the sediment. This work was focused on the removal of the TPHs and PAHs. It was observed that the organics removal efficiency strongly depends on the adopted $E$ values.

**Keywords**: *Marine sediments, ECGO, PAHs, TPHs, Electrochemical remediation, Low electric field*

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